

ABSTRACT

A motor speed resolution enhancement method and system. A display system controller (202) measures the frame rate of an incoming signal to determine the desired color wheel speed. A digital speed control word (212) representing the desired color wheel speed is written to the motor control circuit (204). The motor control circuit uses the digital speed control word (212) to generate analog control voltages (214) that drive the motor (206). The motor controller (204) also detects the position of the motor and generates a series of commutation interrupts (216). The display system controller 202 accurately measures the input signal's frame rate to determine the proper rate at which to spin the color wheel. The resulting desired speed word has a higher resolution than the motor control circuit (204) is able to receive. The disclosed invention provides a method of increasing the resolution of the digital speed control word (212) without upgrading the resolution of the motor control circuit (204). The disclosed invention uses feedback signals from the motor control circuit (204) that occur several times each revolution to force an update of the digital speed control word (212). The periodically updated digital speed control word (212) is dithered so that the average digital speed control word value represents the desired speed of the motor.